

IN THE CLAIMS

Please enter the pending claims as follows:

1 1. (Previously Presented) A broad-angle multilayer (ML) mirror
2 comprising a multiple layer structure to provide uniform reflectivity over a wide
3 range of incident angles with small phase shifts, the structure comprising 36 bi-
4 layers wherein Molybdenum has a thickness of 2.4 - 11.3 nm and Silicon has a
5 thickness of 3.5 - 10.4 nm.

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1 2. (Original) The ML mirror of claim 1 wherein the ML mirror provides
2 an acceptance angle in excess of 20° without a significant loss of reflectivity.

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1 3. (Original) The ML mirror of claim 2 wherein the loss of reflectivity is
2 approximately 17%.

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1 4. (Original) The ML mirror of claim 1 wherein the ML mirror increases
2 the relative phase shift.

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1 5. (Original) The ML mirror of claim 1 wherein the ML mirror comprises
2 a 13.5nm central wavelength.
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1 6. (Previously Presented) The ML mirror of claim 1 wherein the structure
2 comprises: a 13.5nm central wavelength.
3

1 7. (Previously Presented) The ML mirror of claim 1 wherein the bi-layers
2 in the structure have a variable thickness.
3

1 8. (Previously Presented) The ML mirror of claim 1 wherein the structure
2 includes additional bi-layers.
3

1 9. (Previously Presented) The ML mirror of claim 8 wherein the
2 additional bi-layers in the structure are comprised of Mo/Si bi-layers.
3

1 10. (Previously Presented) The ML mirror of claim 8 wherein the
2 additional bi-layers in the structure have a variable thickness.
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1 11. (Previously Presented) An optical system having an extreme ultra-
2 violet (EUV) radiation source, the system comprising:
3 a mask;
4 a wafer; and

5 a plurality of reflecting surfaces for imaging the mask on the wafer,
6 wherein one or more of the plurality of reflecting surfaces includes a broad-angle
7 multilayer (ML) mirror having a multiple layer structure to provide uniform
8 reflectivity over a wide range of angles with small phase shifts, the ML mirror
9 comprising 36 bi-layers wherein Molybdenum has a thickness of 2.4 – 11.3 nm
10 and Silicon has a thickness of 3.5 – 10.4 nm.

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1 12. (Original) The system of claim 11 wherein the plurality of reflecting
2 surfaces comprises six mirrors.

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1 13. (Original) The system of claim 11 wherein the ML mirror provides an
2 acceptance angle in excess of 20° without a significant loss of reflectivity.

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1 14. (Original) The system of claim 13 wherein the ML mirror has a loss of
2 reflectivity of approximately 17%.

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1 15. (Original) The system of claim 11 wherein the ML mirror increases the
2 relative phase shift.

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1 16. (Original) The system of claim 11 wherein the ML mirror comprises a
2 13.5 nm central wavelength.

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1 17. (Previously Presented) The system of claim 11 wherein the structure
2 comprises: a 13.5nm central wavelength.
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1 18. (Previously Presented) The system of claim 11 wherein the bi-layers
2 have a variable thickness.
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1 19. (Previously Presented) The system of claim 11 wherein the structure
2 includes more than thirty-six bi-layers.
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1 20. (Previously Presented) An optical system having an extreme ultra-
2 violet (EUV) radiation source, the system comprising:
3 a mask;
4 a wafer; and
5 a plurality of reflecting surfaces for imaging the mask on the wafer,
6 including: a mirror having a multiple layer structure to provide uniform
7 reflectivity over a wide range of angles with small phase shifts, the mirror
8 comprising 36 bi-layers wherein Molybdenum has a thickness of 2.4 - 3.7 nm
9 except for a thicker bi-layer 1 nearest substrate and Silicon has a thickness of 3.5 -
10 4.1 nm except for thicker bi-layers 3, 5, and 15.
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1 21. (Previously Presented) The system of claim 20 wherein the mirror
2 provides an acceptance angle in excess of 20° without a significant loss of
3 reflectivity.

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1 22. (Previously Presented) The system of claim 21 wherein the mirror has
2 a loss of reflectivity of approximately 17%.

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1 23. (Previously Presented) The system of claim 20 wherein the mirror
2 comprises a 13.5nm central wavelength.

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1 24. (Previously Presented) The system of claim 20 wherein the structure
2 comprises: a 13.5nm central wavelength.

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1 25. (Previously Presented) The system of claim 20 wherein the bi-layers
2 have a variable thickness.

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1 26. (Previously Presented) The system of claim 20 wherein the structure
2 includes more than thirty-six bi-layers.